



Colorado Department
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NEWS

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Results Of Rocky Flats Workers' Health Study Released

DENVER - The results of a 10-year study of the health of 16,303 workers, who were employed in the production of nuclear weapons components at Rocky Flats Nuclear Weapons Plant north of Denver between 1952 and 1989, were released on Thursday, April 17, at two Denver-area public meetings.

The first, late-afternoon meeting was held at the plant site, now known as the Rocky Flats Environmental Technology Site. The second, an evening meeting, was held at the Westminster City Park Recreation Center, 10455 Sheridan Blvd., Westminster.

The epidemiologic studies of the Rocky Flats workers were conducted by researchers at the University of Colorado Health Sciences Center and the Colorado Department of Public Health and Environment. The National Institute for Occupational Safety and Health, the occupational research arm of the U.S. Department of Health and Human Services, provided the \$2.5 million in funding for the study.

In their work, the researchers found that of the 16,303 workers, 2,121 or 13 percent had died by the end of 1996 and that, of these deaths, 640 were due to cancer.

The research showed that in comparison with death rates for the general public, the death rates for Rocky Flats workers were lower for all causes and for cancer.

According to the study, these findings are comparable to those from other studies of nuclear workers, and indicate that nuclear workers are generally healthier than the general public.

The researchers, however, emphasized that the low mortality rates should not be interpreted to indicate that there were no health risks for Rocky Flats workers.

They concluded that for certain cancers, mortality rates for Rocky Flats workers were higher than those for the general public.

The study also found, "There were more than the expected number of deaths from cancers of the stomach, rectum, brain and other central nervous system sites, connective and other soft tissue, as well as for unspecified tumors of the nervous system and unspecified anemias, such as leukemia. With the exception of unspecified tumors of the nervous system, which were detected at over two times the expected rate, these elevations were not statistically significant."

According to the study conclusions, more research will be required to determine whether exposures to radiation or toxic chemicals were responsible for these increases.

The study focused on cancer deaths because this disease is caused by exposures to ionizing radiation and may be caused by certain chemicals that were used at Rocky Flats.

Researchers at the University of Colorado Health Sciences Center are continuing to study the possible causes of the mortality excess for brain tumors among the Rocky Flats workers and are looking into relations between other cancers and radiation and chemical exposures. They also are completing analyses of cancer diagnoses for Rocky Flats workers reported to the Colorado Central Cancer Registry. The

registry is based at the Colorado Department of Public Health and Environment.

The most important study finding is a statistically significant risk for lung cancer from inhaling radioactive particles to the lung. This relationship was found in a case-control study of 180 workers, who died of lung cancer and of 720 workers, who did not die of lung cancer.

Detailed analyses of radiation doses to the lung were conducted for both case and control subjects. In this analysis, researchers identified statistically significant risks for lung cancer for cumulative internal lung doses greater than 400 milli Sievert(mSv) or 40 (rem). The estimates of risks for high-dose categories were not stable, and were complexly influenced by a number of other variables, according to researchers.

As part of the case-control, researchers also investigated associations between lung cancer mortality and of external penetrating radiation and exposure to asbestos, beryllium, hexavalent chromium, and nickel.

The study concluded that no significant associations were found between lung cancer mortality and cumulative external penetrating radiation doses, or cumulative exposures to asbestos, beryllium, hexavalent chromium or nickel.

The researchers concluded that workers employed for fewer than 10 years and for more than 25 years at Rocky Flats during the time period covered by the study had unusually low risks for lung cancer. Analyses limited to workers employed for 15 to 25 years showed a statistically significant linear trend of risk for lung cancer with dose over all dose categories.

According to the authors of the study, there are a number of other findings that need to be explored further in order to more clearly understand the health risks from working with plutonium. They said that most important to future work is the estimation of doses from internal exposures to plutonium and other isotopes, for all workers, with methods like those used in the lung cancer case-control study. These data are critical for determining whether current radiation exposure regulations provide adequate protection for plutonium workers, researchers concluded.

Since only 13 percent of the workers covered by the study had died by the end of 1996, much more can be learned about health risks for plutonium workers by continuing to study the workers at Rocky Flats, the researchers said.

The lead researchers on the project were Dr. A. James Rutenber, an associate professor for the Department of Preventive Medicine and Biometrics for the University of Colorado Health Sciences Center; Dennis Zaebs, a certified industrial hygienist and technical project officer for the National Institute for Occupational Safety and Health; and Margaret F. Schonbeck, a research physical scientist and Environmental Health Studies program manager for the Colorado Department of Public Health and Environment.

The entire report can be found at www.cdphe.state.co.us.

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